



University of Mississippi

Investigation of a Surge and Wave Reduction by Vegetation



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Prevent, Protect, Respond, Recover

Homeland Security Challenge:

Vegetation in wetlands, coastal fringes, and stream floodplains can reduce storm surge and waves and their impact, while providing ecological benefits. However, little is known regarding the necessary scales and arrangements of vegetation needed to maximize surge and wave reduction.

Research Project Solution:

In this project, the team will evaluate the effectiveness of wetland vegetation in mitigating storm wave and surges based on three interrelated tasks:

- field experiments in selected salt marshes in the Louisiana Coast under tropical and winter storm conditions;
- laboratory experiments in a wave flume to assess the dissipation of wave energy by vegetation; and
- development of empirical formulas and numerical models of vegetation effects.

National Implications:

This study based on the vegetation species common to the U.S. coasts, such as *Spartina alterniflora* and *Spartina patens*, will develop guidance to characterize the attenuation of surge and waves as a function of vegetation type, density, height and growth form. Valuable methods and datasets will be generated that can be used nationally by coastal restoration and disaster mitigation organizations and authorities, such as US Army Corps of Engineers, FEMA, NOAA, EPA and USDA, as well as academic communities.



Research team examines one type of vegetation to evaluate its potential to reduce the impact of wave and surge during storm-related events.



Storm-induced erosion, such as that pictured at Walton County Beach in Florida, has had a dramatic impact in the country's coastal regions. The research team will investigate the effectiveness of wetland vegetation in mitigating wave and surge impact in these areas.

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